

REMARKS

Pursuant to the present amendment, claims 1, 13, 23, 56, 58 and 60 have been amended, claims 62-64 have been canceled, and new claims 74-79 have been added. Thus, claims 1-30, 56-61 and 74-79 are pending in the present application. No new matter has been introduced by way of the present amendment. Reconsideration of the present application is respectfully requested in view of the amendments and arguments set forth herein.

Pursuant to the present amendment, independent claims 1, 13 and 23 have been amended to include the limitations that the doped back gate region extends beneath an entirety of the multiple thickness buried oxide layer between the trench isolation structure. Support for such amendments can be found throughout the specification at, for example, page 12, line 14 – page 13, line 5, and the associated drawings therein, *e.g.*, Figures 4A-4C.

Additionally, independent claims 56, 58 and 60 have been amended to recite that the doped back gate region is doped with a dopant material that is of the same type as the dopant material in the active layer or channel regions. Support for such amendments can be found throughout the specification at, for example, page 12, line 14 – page 13, line 5, and the associated drawings therein.

New dependent claims 74, 75 and 76 further limit independent claims 1, 13 and 23, respectively, by reciting that the doped back gate region is doped with a dopant material that is of the same type as that of the active layer of channel region. Support for such amendments can be found throughout the specification at, for example, page 12, line 14 – page 13, line 5, and the associated drawings therein.

New dependent claims 77, 78 and 79 further limit independent claims 56, 58 and 60 respectively, by reciting that the back gate region extend under an entirety of the buried oxide layer within an area defined by an isolation structure formed in the active layer. Support for this limitation may be found throughout the specification at, for example, Figures 4A-4C and the associated discussion of those drawings.

In the Office Action, claims 1-3, 5, 7-11, 13-14, 16, 18-21, 23, 25 and 27-29 were rejected under 35 U.S.C. § 102 as allegedly being anticipated by Inoue (U.S. Patent No. 6,096,582). Claims 56-64 were rejected under 35 U.S.C. § 103 as allegedly being unpatentable over Inoue in view of En (U.S. Patent No. 6,611,023). Claims 4, 6, 12, 15, 17, 22, 24, 26 and 30 were rejected under 35 U.S.C. § 103 as allegedly being unpatentable over Inoue. Applicants respectfully traverse the Examiner's rejections.

Pursuant to the amendments made herein, it is believed that the Examiner's anticipation rejections are moot. However, in making the present amendments, Applicants do not acquiesce in the appropriateness of the Examiner's rejections. Applicants specifically reserve the right to pursue claims of the scope set forth in the rejected claims in a later filed application should they desire to do so.

As the Examiner well knows, to establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the

reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991); M.P.E.P. § 2142. Moreover, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 U.S.P.Q. 580 (CCPA 1974). If an independent claim is nonobvious under 35 U.S.C. § 103, then any claim depending therefrom is nonobvious. *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988); M.P.E.P. § 2143.03.

With respect to alleged obviousness, there must be something in the prior art as a whole to suggest the desirability, and thus the obviousness, of making the combination. *Panduit Corp. v. Dennison Mfg. Co.*, 810 F.2d 1561 (Fed. Cir. 1986). In fact, the absence of a suggestion to combine is dispositive in an obviousness determination. *Gambro Lundia AB v. Baxter Healthcare Corp.*, 110 F.3d 1573 (Fed. Cir. 1997). The mere fact that the prior art can be combined or modified does not make the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 U.S.P.Q.2d 1430 (Fed. Cir. 1990); M.P.E.P. § 2143.01. The consistent criterion for determining obviousness is whether the prior art would have suggested to one of ordinary skill in the art that the process should be carried out and would have a reasonable likelihood of success, viewed in the light of the prior art. Both the suggestion and the expectation of success must be founded in the prior art, not in the Applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991); *In re O'Farrell*, 853 F.2d 894 (Fed. Cir. 1988); M.P.E.P. § 2142.

As amended, independent claims 1, 13 and 23 now include the limitations that the doped back gate region extends under an entirety of the buried insulation layer between the isolation structure. Respectfully, it is believed that such a structure is not disclosed nor would it have

been obvious in view of the prior art of record. In En, the Examiner's secondary reference, the back gate 38 is formed by performing an implant process through the area occupied by the disposable gate 86. That is, the back gate 38 in En is a strip that extends along the width of the channel, *i.e.*, into the drawing in Figure 3H. This view is better shown in Figure 4A, which is a cross-sectional view of Figure 3H. Col. 6, l. 56 – Col. 7, l. 3. It is also clear from the manner in which the device in En is made that the back gate 38 does not extend laterally, *i.e.*, in the gate length direction, beyond this strip. That is, the back gate 38 in En goes not extend under the source/drain regions 16, 18 shown in En.

Accordingly, it is believed that independent claims 1, 13 and 23, and all claims depending therefrom, are believed to be allowable. Given the unique process flow described in En, it is not understood how the process flow described therein could be modified so as to result in the devices claimed in independent claims 1, 13 and 23. In En, the back gate 38 has a strip-like configuration that is positioned beneath and substantially aligned with the channel region of the device disclosed therein. This naturally results from the fact that the implantation process that is performed to form the back gate 38 is performed through the area occupied by the disposable gate 86.

Independent claims 56, 58 and 60 have been amended to recite that the doped back gate region as defined in these claims is doped with a dopant material that is of the same dopant type as the dopant material employed in the active layer. For example, if the active layer is doped with a P-type dopant material, *e.g.*, boron, the doped back gate region is also doped with the same type – P-type – dopant material. However, different dopant species – of the same dopant type – may be employed in the active layer and the doped back gate region.

As thus amended, it is respectfully submitted that independent claims 56, 58 and 60, and all claims depending therefrom, are in condition for allowance. In En, the back gate 38 is doped with a dopant material that is of an opposite type to that of the active layer. En specifically notes that the channel region 14 is doped with P-type dopant material (Col. 4, ll. 29-32) while the back gate region 38 is formed by implanting an N-type dopant material (Col. 6, ll. 56-61). That is, En teaches exactly the opposite of the subject matter now set forth in amended independent claims 56, 58 and 60. Moreover, there does not appear to be any motivation or suggestion in the art of record that would lead one skilled in the art to modify the express teachings of En so as to arrive at the presently claimed inventions. If anything, En can be thought of as teaching away from the inventions defined in independent claims 56, 58 and 60.

New dependent claims 74, 75 and 76 further limit independent claims 1, 13 and 23, respectively, by reciting that the back gate region and the active layer are doped with the same type of dopant material. Accordingly, it is believed that these dependent claims are allowable independent of their dependency on allowable claims 1, 13 and 23.

New dependent claims 77-79 further limit independent claims 56, 58 and 60 by reciting that the doped back region extends beneath an entirety of the buried oxide layer within an area defined by an isolation structure formed in the active layer. As set forth above, En is not understood to in any way disclose or suggest such a limitation. Accordingly, it is believed that independent claims 77-79 are likewise allowable.

A recent Federal Circuit case makes it crystal clear that, in an obviousness situation, the prior art must disclose each and every element of the claimed invention, and that any motivation to combine or modify the prior art must be based upon a suggestion in the prior art. *In re Lee*, 61

U.S.P.Q.2d 143 (Fed. Cir. 2002). Conclusory statements regarding common knowledge and common sense are insufficient to support a finding of obviousness. *Id.* at 1434-35. “Our case law makes clear that the best defense against the subtle but powerful attraction of hindsight-based obviousness analysis is rigorous application of the requirement for a showing of the teaching or motivation to combine prior art references.” *Teleflex v. KSR Intern. Co.*, 119 Fed. Appx. 282 (Fed. Cir. 2005) (unpublished) (citations omitted).

For at least the aforementioned reasons, it is respectfully submitted that all pending claims are in condition for immediate allowance. The Examiner is invited to contact the undersigned attorney at (713) 934-4055 with any questions, comments or suggestions relating to the referenced patent application.

Respectfully submitted,

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